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Feature Article - Improvements to Trend Estimation for National Accounts Aggregates

INTRODUCTION

The way trend estimates are derived for the national accounts aggregates will change from the September quarter 1998 issue of the national accounts. Presently, ABS practice is to derive the trend estimates of national accounts aggregates by summing the trend estimates of their components. From the September quarter 1998, the trend estimates of aggregates will be derived 'directly', by estimating trend from the seasonally adjusted aggregate. Consequently, for the latest three quarters the trend estimate of the aggregate will not exactly equal the sum of the component trend estimates - so called 'loss of additivity'. This article provides information on these improvements to be made to trend estimation for national accounts aggregates from the September quarter 1998.

While changes to trend estimates of national accounts aggregates are the focus of this technical note, other more major changes will also be made to the national accounts from the September quarter 1998. These major changes are foreshadowed in Information Papers Implementation of Revised International Standards in the Australian National Accounts (cat. no. 5251.0) and Introduction of Chain Volume Measures in the Australian National Accounts (cat no. 5248.0). These changes are outlined in this technical note (page 4) and contacts for further information are provided (page 5).

TREND ESTIMATION FOR THE MOST RECENT QUARTERS

Seasonally adjusted time series estimates include both the trend effects and the irregular effects which influence movements in a series. As a result, seasonally adjusted estimates do not necessarily provide a good indication of the underlying behaviour of a series. On the other hand, trend estimates represent the underlying direction of the series, excluding seasonal effects and residual/irregular factors. Trend estimates are calculated by smoothing the seasonally adjusted series using a statistical procedure based on centred Henderson moving averages. The procedure used is designed to minimise distortions in the trend level, turning point shape and timing of turning points.

For the most recent three quarters, insufficient data exist to use centred Henderson moving averages to calculate the trend values and so approximations to the Henderson moving averages are used. As later data become available, the approximations can be replaced by the actual centred Henderson moving averages. This means that revisions to the trend estimates for the last few quarters are unavoidable, even if none of the original data have been revised. More details about trend estimation are contained in the ABS Information Paper A Guide to Interpreting Time Series - Monitoring 'Trends': An Overview (cat. no. 1348.0).

CHANGES TO TREND ESTIMATION FOR NATIONAL ACCOUNTS AGGREGATES

In choosing which approximation of the Henderson moving average to use for the latest periods,

there are two conflicting considerations. The first is to achieve an effective amount of smoothing and the second is to have the centre of the averages as close as possible to the reference period. The latter is important because it affects how quickly the trend estimates can detect a turning point. Inevitably, a compromise has to be struck, but the best compromise for one series need not be the best for another. For series that display a high degree of irregularity relative to trend growth the best compromise is one which has a high degree of smoothing, whilst for a series that has a low degree of irregularity relative to trend growth the best compromise is one which has less smoothing but has the centre of the average closer to the reference period. Hence, different averages are used for different series, and the choice depends on the degree of irregularity relative to trend growth that each series has displayed in the past.

It has been ABS practice to derive the trend estimates of national accounts aggregates by summing the trend estimates of their components, thus maintaining the additive relationship present in the original and seasonally adjusted data. In general, aggregates tend to be less irregular than their components, because irregularities in the components often offset each other to some extent. Consequently, the approximations to the Henderson moving average which best suit the component series are sub-optimal for the aggregate series. This implies there is a choice between having additivity on the one hand and having the best trend estimates of the aggregates on the other.

The ABS has come to the view that it is best to forego additivity and to have the best trend estimates of aggregates in the national accounts. Accordingly, from the September quarter 1998 issue of the national accounts the trend estimates of aggregates will be derived directly. For the latest three quarters the trend estimate of the aggregate will not exactly equal the sum of the components trend estimates. Overall, revision to the trend estimates of aggregates should be reduced, however there may be a greater revision to the estimates whenever there are large irregular movements in the seasonally adjusted estimate of the aggregate.

OTHER MORE MAJOR CHANGES TO THE NATIONAL ACCOUNTS

As foreshadowed in the Information Papers Implementation of Revised International Standards in the Australian National Accounts (cat. no. 5251.0) and Introduction of Chain Volume Measures in the Australian National Accounts (cat. no. 5248.0) there will be major changes in the September quarter 1998 release of Australian National Accounts: National Income, Expenditure and Product (cat. no. 5206.0). As far as possible the international standards contained in the 1993 version of the System of National Accounts (SNA93) will be implemented, which will impact on data items, terminology and table formats. Also, the content of Australian National Accounts: National Income, Expenditure and Product (cat. no. 5206.0) has been reviewed. In conjunction with the SNA93 changes, improved annual benchmark estimates for production account aggregates will be introduced into the national accounts.

Commencing with the year 1994-95 the production account will be benchmarked to balanced annual supply-use tables.

An Information Paper entitled Upgraded Australian National Accounts (cat. no. 5253.0) will be released on 29 October 1998 to provide users with advance information about the changes to the content of Australian National Accounts: National Income, Expenditure and Product (cat. no. 5206.0) and the impact of SNA93 changes and the improved annual benchmarking procedures on the estimates. This information paper will include a re-issue of the June quarter 1998 accounts adjusted for these changes. It is not expected that the changes will result in significant revisions to recent quarterly GDP growth rates.

CONTACTS FOR FURTHER INFORMATION

For further information about trend estimation contact Mr Mark Zhang, Director, Time Series Analysis and AEI Section, on (02) 6252 5132.

For further information about forthcoming changes to the national accounts contact Ms Patricia Mahony, Director, Constant Price Estimates Section, on (02) 6252 6711.

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